Errata

Publication I

The PDF_{X_i} detailed in the section *PDF of a Single Interval over Independent FT Process Trials* was incorrect due to a coding error. The corrected function can be found below. Subsequently, the $PDF_{X_i^2}$ detailed in Supporting Text S1 was also incorrect (due to the same error). The corrected function can also be found below. The corrected $PDF_{X_i^2}$ is less complex but still a piecewise function with 7 unique sub-functions (note that some sub-functions and sub-domains are present in both parts of the function). The $PDF_{X_i^3}$ case is computationally tractable but again splits the result into an even larger number of piecewise functions. Thus, as mentioned, any analytical form is unlikely to be of practical use. Thanks to Dr. Colin Rose of the Theoretical Research Institute (Sydney) and MathStatica for pointing out this error.

$$PDF_{X_i} = \left\{ \begin{array}{cc} \frac{\alpha}{\alpha-1} & \left(0 < y < \frac{1-\alpha}{2}\right) \\ \frac{1}{\alpha} - 1 & \left(\frac{1-\alpha}{2} \leq y < \frac{1+\alpha}{2}\right) \\ \frac{\alpha}{\alpha-1} & \left(\frac{1+\alpha}{2} \leq y < 1\right) \end{array} \right\}$$

For $(-2+\sqrt{5})<\alpha<1$

$$PDF_{x_i{}^2} = \begin{cases} \frac{(4-8\alpha)ArcTanh[\alpha]-\alpha^2\log[y]}{(-1+\alpha)^2} & \left(0<y<\frac{1}{4}(\alpha-1)^2\right) \\ \frac{1}{(-1+\alpha)^2\alpha^2}\left((-1+\alpha)^4\log\left[\frac{4y}{(-1+\alpha)^2}\right]+2\alpha^4\log\left[\frac{2}{1+\alpha}\right]-2(-1+\alpha)^2\alpha^2\log\left[-\frac{4y}{-1+\alpha^2}\right]\right) & \left(\frac{1}{4}(\alpha-1)^2<y<\frac{1}{4}\left(1-\alpha^2\right)\right) \\ \frac{1}{(-1+\alpha)^2\alpha^2}\left(-2\alpha^4\log\left[-\frac{2y}{-1+\alpha}\right]-(-1+\alpha)^4(\log[4]+\log[y]-2\log[1+\alpha])+2(-1+\alpha)^2\alpha^2\log\left[-\frac{4y}{-1+\alpha^2}\right]\right) & \left(\frac{1}{4}\left(1-\alpha^2\right)<y<\frac{1-\alpha}{2}\right) \\ \frac{-\log[4]+\alpha\log[16]-(-1+\alpha)^2\log[y]+(2-4\alpha)\log[1+\alpha]}{\alpha^2} & \left(\frac{1-\alpha}{2}<y<\frac{1}{4}(\alpha+1)^2\right) \\ \frac{\alpha^2\log\left[\frac{4y}{(1+\alpha)^2}\right]}{(-1+\alpha)^2}-2\log\left[\frac{2y}{1+\alpha}\right] & \left(\frac{1}{4}(\alpha+1)^2<y<\frac{1+\alpha}{2}\right) \\ -\frac{\alpha^2\log[y]}{(-1+\alpha)^2} & \left(\frac{1+\alpha}{2}<y<1\right) \end{cases}$$

For $0<\alpha<(-2+\sqrt{5})$

$$PDF_{x_i{}^2} = \begin{cases} \frac{(4-8\alpha)ArcTanh[\alpha]-\alpha^2\log[y]}{(-1+\alpha)^2} & \left(0<y<\frac{1}{4}(\alpha-1)^2\right) \\ \frac{1}{(-1+\alpha)^2\alpha^2}\left((-1+\alpha)^4\log\left[\frac{4y}{(-1+\alpha)^2}\right]+2\alpha^4\log\left[\frac{2}{1+\alpha}\right]-2(-1+\alpha)^2\alpha^2\log\left[-\frac{4y}{-1+\alpha^2}\right]\right) & \left(\frac{1}{4}(\alpha-1)^2<y<\frac{1}{4}\left(1-\alpha^2\right)\right) \\ \frac{1}{(-1+\alpha)^2\alpha^2}\left(-2\alpha^4\log\left[-\frac{2y}{-1+\alpha}\right]-(-1+\alpha)^4(\log[4]+\log[y]-2\log[1+\alpha])+2(-1+\alpha)^2\alpha^2\log\left[-\frac{4y}{-1+\alpha^2}\right]\right) & \left(\frac{1}{4}\left(1-\alpha^2\right)<y<\frac{1}{4}(\alpha+1)^2\right) \\ \frac{-\alpha(8ArcTanh[\alpha]+\alpha\log[y])+\log\left[\frac{1}{(-1+\alpha)^2}\right]+2\log[1+\alpha]}{(-1+\alpha)^2} & \left(\frac{1}{4}(\alpha+1)^2<y<\frac{1-\alpha}{2}\right) \\ \frac{\alpha^2\log\left[\frac{4y}{(1+\alpha)^2}\right]}{(-1+\alpha)^2}-2\log\left[\frac{2y}{1+\alpha}\right] & \left(\frac{1-\alpha}{2}<y<\frac{1+\alpha}{2}\right) \\ -\frac{\alpha^2\log[y]}{(-1+\alpha)^2} & \left(\frac{1+\alpha}{2}<y<1\right) \end{cases}$$

Publication II

For the permutation test of section 5.2 the result is $0.00011 \leq p$ rather than $0.0001 \leq p$ due to the use of an approximate permutation test rather than an exact permutation test. This does not change at all the conclusion of the test given the extremely high significance in either case.